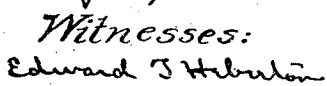


CAR FENDER.

955,495.

2 SHEETS—SHEET 1.



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955,495.

Patented Apr. 19, 1910.

2 SHEETS—SHEET 2.

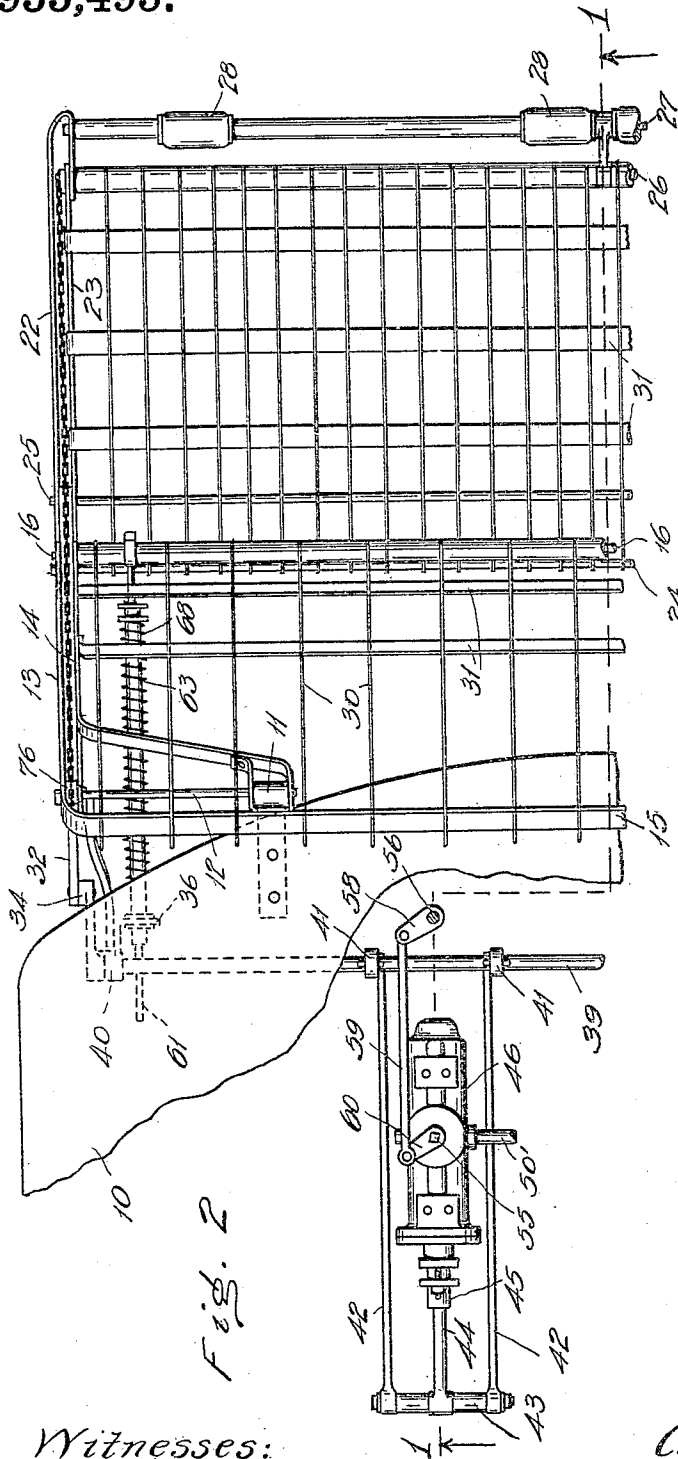


Fig. 2

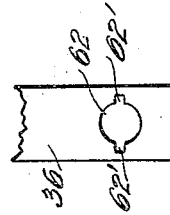


Fig. 4

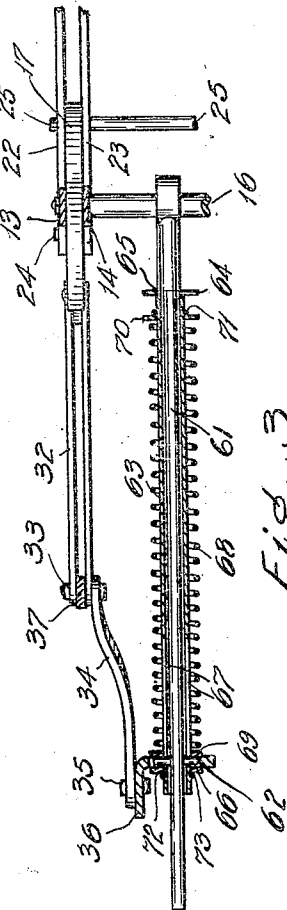


Fig. 3

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UNITED STATES PATENT OFFICE.

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CAR-FENDER.

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Specification of Letters Patent.

Patented Apr. 19, 1910.

Application filed February 15, 1909. Serial No. 477,835.

To all whom it may concern:

Be it known that I, CHAUNCEY A. BISBEE, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Car-Fenders, of which the following is a specification.

This invention relates to car-fenders and, more especially, to improvements in apparatus of this character which were illustrated and described in my patent application, Serial No. 402,705, filed November 18, 1907.

The object of my improvements is to simplify the construction of the fender and render the operation of the same more effective.

The invention consists in the novel construction and combination of devices, as will be hereinafter described with reference to the accompanying drawings, wherein—

Figure 1 is a longitudinal vertical sectional view of an embodiment of the invention taken through 1—1 of Fig. 2. Fig. 2 is a plan view of a portion of the fender and its operating connections. Fig. 3 is a plan view, partly in section, of parts shown in the foregoing views. Fig. 4 is a detail front elevation of a portion of one of the bracket elements. Fig. 5 is a detail elevational view of one of the fender joint connections. Fig. 6 is a fragmentary plan view of the power cylinder with the valve and cover of the valve-chamber omitted. Fig. 7 is an underside plan view of the valve.

The reference numeral 10 designates the front platform of a car and to which is rigidly secured in proximity to each of its sides a hinge element such as 11. Fulcrumed to the hinge elements, as by a rod 12 upon each side, is a substantially rectangular frame comprising the upper fender member. This frame may be formed of a pair of side elements 13 and 14, at each side of the frame, and has transverse bars 15 and 16. The lower of these bars is desirably a round rod and extends through said side elements 13 and 14 to afford a pivotal connection with a joint member 17 at each side of the frame. These joint members, see Fig. 5, are each provided at the front with a face 18 which slopes downwardly from its connection with the rod 16 and has upon the underside and at the extreme forward end a notch 19, while below said rod connection is a longitudinal slot 20. A lower fender member 21 is comprised of a frame having upon each side a

pair of side elements 22 and 23 which are spaced apart to accommodate the respective joint members 17 therebetween, and has transversely disposed rod-elements 24, 25, 26 and 27 connecting the opposite of said side members to make a rigid frame structure. The rod 24 is positioned at the rear and extends through the slot 20 of the respective joint elements and serves as the hinge pivot of the lower fender member and the rod 25 is arranged so that it will be seated in the notch 19 of such joint member when the rod 24 is positioned to the rear of the slot 20 of each of the attachments.

Upon the rod 27 are rollers 28 which serve as wheel elements to roll against the track surface 29 when the fender member 21 is in its lowermost position, as indicated by broken lines in Fig. 1. Provided for the upper and lower fender members are nets or screens which may severally be comprised of wires 30 disposed longitudinally to the respective frames and are sustained by a suitable number of spaced transverse slats 31.

Fixedly secured to each of the joint members 17 is a rearwardly extending arm 32 which is pivotally connected by a pin 33 with the end of a bar 34 which in turn is pivotally connected from its other end by a pin 35 with a bracket 36 depending from the car body. The arm 32 and bar 34 comprise toggle elements and are, upon each side of the fender, connected from the pin 33 by a link 37 to arms 38 upon the end of a transverse rock-shaft 39 which is journaled in suitable bearings such as 40 which are, most conveniently, secured to the respective brackets 36. Intermediate the length of said rock-shaft it is provided with crank-arms 41, which are operatively connected by bars 42 with the cross-head 43 of a piston-rod 44. Said piston-rod 44 passes through the gland 45 of a stuffing-box at the end of a power-cylinder 46 and within which the piston-head 44' operates.

47 represents a valve chamber, see Figs. 1 and 6, arranged for a rotary valve 48 and having in the valve seat 49 an inductive port 50, an exhaust port 51 and service ports 52 and 53 which latter are respectively connected with the opposite extremities of the cylinder bore by ducts 52' and 53'. The port 51 opens into the atmosphere and the port 50 communicates through a pipe connection 50' with a suitable reservoir of compressed air upon the car such as, for ex-

ample, that employed with an air-brake apparatus. The ports 52 and 53 are desirably arranged upon diametrically opposite sides of the valve axis and in longitudinal alinement with respect to the cylinder 45; while the other ports 50 and 51 are disposed upon opposite sides of said axis and in a plane rectangular to the cylinder. The valve 48 is of a segmental shape in horizontal section, as indicated from the under-side view in Fig. 7, or by broken lines in Fig. 6, and is of such size as to cover the two service-ports 52, 53 and the exhaust port of the valve seat. The valve is chambered as at 54 to afford communicative connection between these three ports when the valve is in its medial or normal position. The valve is likewise adapted, when properly rotated to expose either of the ports 52 or 53 while maintaining communicative connection between the unexposed port (52 or 53) and the exhaust port whereupon the power medium will flow to the selected end of the cylinder through the exposed port (52 or 53) and its connecting conduit to urge the piston toward the opposite end of the cylinder and from such end the air is exhausted through the other conduit to the atmosphere.

The valve 48 is provided with a stem 55 which is connected with operating devices extending into convenient reach of the operator upon the car platform. Such operating devices may consist of a rotatable upright post 56 extending through the car platform with a lever handle 57 at the top and an arm 58 at the bottom, and with a link 59 connecting this arm with another arm 60 which is secured to the valve-stem 55. 61 is one of a pair of rods having a bifurcated forward end which straddles the pivot-rod 16 of the upper fender member and extends rearwardly therefrom through an aperture 62 (see Fig. 4) in the adjacent bracket 36. A sleeve 63 is mounted upon the rod 61 and abuts at the forward end against a washer 64 which is constrained by the shoulder 65 provided upon the end. A pin 66 is fixedly secured to the rod and protrudes through slots 67 provided in the sleeve. The bracket-aperture 62 being of sufficient size to allow said sleeve to move freely there-through and to accommodate pin 66 notches 62' are provided upon the opposite sides of the aperture. A spiral spring 68 is mounted upon said sleeve and acts between a washer 69 which is restrained by the bracket, and a washer 70 which is secured as against end-play to the sleeve by a collar 71 seated in a notch of the sleeve. To prevent the withdrawal of the sleeve from the bracket aperture a washer 72 is provided to the rear of the bracket and secured against removal by a collar 73 placed in another notch of the sleeve.

75 represents a chain upon each side of

the fender for supporting the weight of the forward end of the lower fender member. Each of these chains passes over a pulley, as 76, which is disposed to have its axis in alinement, or nearly so, with the axis of the hinge-rod 12 and thence extends downwardly and is secured to the arm 32, as shown in Fig. 1, and by such disposition of the chain the latter accommodates itself to the various movements of the fender members.

From the foregoing description of the invention it is to be noted that the upper fender member is supported from the hinge-elements 11 upon the car and is also connected by the pivot-rod 16 to joint-members 17. Also that the lower fender member 21 is connected with said joint-members by a pivot-rod 24 extending through the slot 20 in each of the latter. Through the offices of the springs 68 acting through the medium of the rods 61 a forward pressure is exerted upon the pivot-rod 16 to cause said joint-members to be thrust forwardly to reliably retain the ends of the rods 25 within the notches 19 of the respective joint-members. Accordingly to raise or lower the fender member 21 the operator upon the car manipulates the post 56 to effect the movement of the valve 48 from its normal mid-position to expose one or the other of the ports 52 or 53 so that compressed air entering through the pipe 50' is free to flow into the appropriate end of the cylinder to give motion to the piston and, through the communicating mechanism, exert a force through the toggle elements 32 and 34 to swing the fender bodily forward or back.

When thrust forward the front of the fender member 21 is raised, as might be demanded when the car is ascending an incline; but when swung backwardly the front of the fender member 21 would be depressed, as indicated by broken lines in Fig. 1, and in which condition the fender is in position to pick up an object upon the track. The valve 48 would normally be in such rotary position as to establish communication between both ends of the cylinder and the external atmosphere and consequently the piston is free to move so that should the fender then encounter an object of sufficient weight, as a human body, the springs 68 would be overcome and the fender forced back to tilt the fender-member 21 downwardly to receive the object thereupon. The fender is thus seen to be automatic in its action as well as being capable of actuation through the agency of compressed air apparatus under the control of the operator. When the fender is not to be used, as when the car is to be housed in a barn, or as regards the fender to the rear of a car thus equipped, the fender member 21 may be folded up against the other member by first pulling

the member 21 sufficiently far forward with respect to the attachment 17 to allow the rod 25 to clear the joint notches 19 and in so doing the pivot-rod 24 is correspondingly moved forward in the slots 20.

What I claim, is—

1. The combination with a car, of a fender member which is hinged to the car, another fender member, joint members intermediate said fender members and to which each of said fender members are pivotally connected, a spring acting against the first named member to maintain the fender in its normal position, and means connected with said joint members whereby the movements of the fender may be effected from the car.

2. The combination with a car, of an upper fender member, a lower fender member, joint members intermediate said fender members, hinge elements for tiltably connecting said upper fender member to the car, an arm extending rearwardly from each of said joint members, a pulley rotatably carried at each side of said upper member, a chain passing over each of said pulleys and having its opposite ends connected with said lower fender and said arms, and a spring acting against said upper fender member upon the respective sides of the fender.

3. The combination with a car, and a fender hingedly connected thereto, of brackets secured to the car, toggle-elements connecting the fender with said brackets, a rock-shaft, operative connections between the rock-shaft and the respective toggle-elements, a power cylinder, operative connections between the cylinder and said shaft, and manually operated means for controlling the power agent to actuate the cylinder to selectively effect the tilting of the fender in an upward or in a downward direction.

4. The combination with a car, of a fender hingedly connected to the car, said fender comprising two members and joint members therebetween and pivotally connected with each, a bracket fixedly secured to the car, a rod engaging the fender, a sleeve slidable upon said rod, and extending through the bracket, means to limit the movement of the rod with respect to the sleeve, and a spring upon the sleeve for yieldingly retaining the fender in a predetermined position.

5. The combination with the car, a fender hinged thereto and a spring to yieldingly retain the fender in a predetermined position with respect to the car, of compressed air actuated devices for swinging the fender in an upward or in a downward direction, and manually operated means for controlling the action of said devices.

6. The combination with a car, of a fender hinged to the car, a power cylinder carried by the car, operative connection between the

piston of said cylinder and the fender, means to conduct the power agent to said cylinder, a valve for controlling the flow of such agent to either end of the cylinder through ducts provided in the cylinder, said valves being likewise arranged to obstruct the flow of the power agent from both of said ducts and coincidentally make communication between both of said ducts and the atmosphere externally of the cylinder and whereby the piston accommodates its movements to the movements of said fender, and manually operated devices for controlling the valve.

7. The combination with a car, of a fender hinged to the car, toggle elements connected to the fender, a power cylinder carried by the car, operative connection between the piston of said cylinder and the said toggle elements, means to conduct the power agent to said cylinder, a valve for controlling the flow of such agent to either end of the cylinder through ducts provided in the cylinder, said valve being likewise arranged to obstruct the flow of the power agent from both of said ducts and coincidentally make communication between both of said ducts and the atmosphere externally of the cylinder, and whereby the piston accommodates its movements to the movements of said fender, and manually operated devices for controlling the valve.

8. The combination with a car, of a fender hinged to the car, a power cylinder carried by the car, operative connection between the piston of said cylinder and the fender, means to conduct the power agent to said cylinder, a valve for controlling the flow of such agent to either end of the cylinder through ducts provided in the cylinder, said valves being likewise arranged to obstruct the flow of the power agent from both of said ducts and coincidentally make communication between both of said ducts and the atmosphere externally of the cylinder and whereby the piston accommodates its movements to the movements of said fender, manually operated means for controlling the valve, and a spring tending to maintain the fender in a predetermined position.

9. The combination with a car, of a fender hinged to the car, toggle elements connected to the fender, a power cylinder carried by the car, operative connection between the piston of said cylinder and said toggle elements, means to conduct the power agent to said cylinder, a valve for controlling the flow of such agent to either end of the cylinder through ducts provided in the cylinder, said valve being likewise arranged to obstruct the flow of the power agent from both of said ducts and coincidentally make communication between both of said ducts and the atmosphere externally of the cylinder, and whereby the piston accommodates its movements to the movements of the said fender,

manually operated devices for controlling the valve, and a spring tending to maintain the fender in a predetermined position.

10. The combination with a car, of a fender tiltably hinged to the car and comprising upper and lower fender members, joint members which are pivotally connected to both the upper and lower fender members, a rearwardly extending arm upon each of said joint members, brackets secured to the car, bars pivotally connected with the respective brackets and arms to afford toggle elements, and means for controlling said toggle elements whereby the joint members are affected to tilt the fender members forwardly or rearwardly.

11. The combination with a car, of a fender tiltably hinged to the car and comprising upper and lower fender members, joint members which are pivotally connected to both the upper and the lower fender members, a rearwardly extending arm upon each of said joint members, brackets secured to the car, bars pivotally connected with the respective brackets and arms to afford toggle elements, a compressed air cylinder, a piston operative within the cylinder, operative

connection between said toggle elements and the cylinder, and manually controlled means for regulating the power medium of said cylinder whereby the toggle is actuated to tilt the fender members forwardly or rearwardly.

12. The combination with a car, of an upper fender member, hinge elements connecting said fender member to the car, a joint member pivotally connected with said fender member and provided with a notch at its forward end and also with a longitudinal slot, a lower fender member, a pivot-rod on the last named member and extending into the slot of said joint-member, another rod upon the lower member arranged to seat in said notch when said pivot bar is to the rear of said slot, a spring acting against said upper member, an arm rigid with said joint member and extending rearwardly therefrom, and means operative through said arm for controlling the action of the lower fender member.

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